



[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 31

[Docket No.FAA-2018-0566; Notice No. 31-18-01-SC]

Special Conditions: Ultramagic S.A., Model M-56, M-56C, M-65, M-65C, M-77, M-77C, M-90, M-105, M-120, M-130, M-145, M-160, N-180, N-210, N-250, N-300, N-355, N-425, S-70, S-90, S-105, S-130, S-160, T-150, T-180, T-210, V-56, V-65, V-77, V-90, and V-105 Balloons; Balloon Passenger Basket, Model CV-08, Seat Installation.

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: This action proposes special conditions for Ultramagic S.A. Model M-56, M-56C, M-65, M-65C, M-77, M-77C, M-90, M-105, M-120, M-130, M-145, M-160, N-180, N-210, N-250, N-300, N-355, N-425, S-70, S-90, S-105, S-130, S-160, T-150, T-180, T-210, V-56, V-65, V-77, V-90, and V-105 balloons. These balloons will have novel or unusual design features associated with a standard construction basket with a singular distribution that includes four occupant seats and a lower sidewall. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for these design features. These proposed special conditions contain the additional safety standards the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: Send your comments on or before **[insert a date 45 days after date of publication in the Federal Register]**.

ADDRESSES: Send comments identified by docket number FAA-2018-0566 using any of the following methods:

- ☐ Federal eRegulations Portal: Go to <http://www.regulations.gov> and follow the online instructions for sending your comments electronically.
- ☐ Mail: Send comments to Docket Operations, M-30, U.S. Department of Transportation (DOT), 1200 New Jersey Avenue, SE., Room W12-140, West Building Ground Floor, Washington, D.C., 20590-0001.
- ☐ Hand Delivery of Courier: Take comments to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, S.E., Washington, D.C., between 9 a.m., and 5 p.m., Monday through Friday, except Federal holidays.
- ☐ Fax: Fax comments to Docket Operations at 202-493-2251.

Privacy: The FAA will post all comments it receives, without change, to <http://regulations.gov>, including any personal information the commenter provides. Using the search function of the docket web site, anyone can find and read the electronic form of all comments received into any FAA docket, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). DOT's complete Privacy Act Statement can be found in the Federal Register published on April 11, 2000 (65 FR 19477-19478), as well as at <http://DocketsInfo.dot.gov>.

Docket: Background documents or comments received may be read at <http://www.regulations.gov> at any time. Follow the online instructions for accessing the docket or go to the Docket Operations in Room W12-140 of the West Building Ground Floor at 1200

New Jersey Avenue, SE., Washington, D.C., between 9 a.m., and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Robert Stegeman, FAA, AIR-691, Policy & Innovation Division, Small Airplane Standards Branch, Aircraft Certification Service, 901 Locust; Kansas City, Missouri 64106; telephone (816) 329-4140; facsimile (816) 329-4090.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite interested people to take part in this rulemaking by sending written comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data. We ask that you send us two copies of written comments.

We will consider all comments we receive on or before the closing date for comments. We will consider comments filed late if it is possible to do so without incurring expense or delay. We may change these special conditions based on the comments we receive.

Background

On August 4, 2016, Ultramagic S.A. (Ultramagic) applied for a change to Type Certificate (TC) No. B02CE¹ to include new basket Model no. CV-08 for balloon Models M-56, M-56C, M-65, M-65C, M-77, M-77C, M-90, M-105, M-120, M-130, M-145, M-160, N-180, N-210, N-250, N-300, N-355, N-425, S-70, S-90, S-105, S-130, S-160, T-150, T-180, T-210, V-56, V-65, V-77, V-90, and V-105. The CV-08 basket consists of a traditionally constructed basket, but incorporates seats with restraints and trays for all passengers, as well as a lower basket sidewall

¹ See <http://rgl.faa.gov/>

to offer a panoramic view for passengers. The CV-08 basket will be matched with one of the balloon envelopes associated with the balloon models listed in these special conditions. The volume of hot air, gores, maximum diameter, and total height defines the balloon envelope.

Most balloon baskets accommodate standing passengers. The CV-08 differs by incorporating passenger seats, restraints, and a lower basket sidewall. Due to the lower sidewall and seat configuration, passengers would need to remain seated and restrained with safety belts during flight. This configuration should consider the static strength of the installations, the possible loads in an accident, and the effect on passenger safety. Accident impact should consider safety comparison between a restrained, sitting occupant; and a normal, standing occupant. Safety requirements for balloon-seated occupants are not included in the existing airworthiness regulations. These proposed special conditions evaluate the seat installations and restraints using methods consistent with special conditions issued by the European Aviation Safety Agency (EASA). The EASA special conditions are based upon a German standard for seats in hot air airships.

Type Certification Basis

Under the provisions of § 21.101, Ultramagic must show that the M-56, M-56C, M-65, M-65C, M-77, M-77C, M-90, M-105, M-120, M-130, M-145, M-160, N-180, N-210, N-250, N-300, N-355, N-425, S-70, S-90, S-105, S-130, S-160, T-150, T-180, T-210, V-56, V-65, V-77, V-90, and V-105 balloon models—coupled with the CV-08 basket—continues to meet the applicable provisions of the regulations incorporated by reference in TC No. B02CE or the applicable regulations in effect on the date of application for the change. The regulations incorporated by reference in the type certificate are commonly referred to as the "original type certification basis." The regulations incorporated by reference in TC No. B02CE are as follows:

14 CFR 21.29 and part 31, effective on January, 1990, as amended by 31-1 through 31-5 inclusive.

Equivalent level of Safety findings per provision of 14 CFR 21.21(b)(1):

ACE-08-15 of August 1, 2008, Burners, 14 CFR 31.47(d)

ACE-08-15A of November 05, 2013, Burners, 14 CFR 31.47(d), for Model S-70

Special Conditions 31-001-SC applicable to MK-32 model burners.

If the Administrator finds that the applicable airworthiness regulations (i.e., 14 CFR part 31) do not contain adequate or appropriate safety standards for the balloon models listed in these proposed special conditions because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model(s) for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same or similar novel or unusual design feature, or should any other model already included on the same type certificate be modified to incorporate the same or similar novel or unusual design feature, the FAA would apply these special conditions to the other model under § 21.101.

The FAA issues special conditions, as defined in 14 CFR 11.19, in accordance with § 11.38, and they become part of the type-certification basis under § 21.101.

Novel or Unusual Design Features

The M-56, M-56C, M-65, M-65C, M-77, M-77C, M-90, M-105, M-120, M-130, M-145, M-160, N-180, N-210, N-250, N-300, N-355, N-425, S-70, S-90, S-105, S-130, S-160, T-150, T-180, T-210, V-56, V-65, V-77, V-90, and V-105 balloon models coupled with a CV-08 basket will incorporate the following novel or unusual design features:

Occupant seats with restraints and a lowered basket side rail.

Discussion

Neither the FAA's airworthiness standards (14 CFR part 31, amendment 31-5), nor EASA's current Certification Specification (CS) for Hot Air Balloons (CS 31HB, amendment 1), incorporate specific requirements for seat and seat belts.

EASA previously published a proposed special condition² (now expired) for seats and seat belts for hot air balloon baskets. EASA based the requirements of its proposed special condition on the German airworthiness requirements for Hot Air Airships LFHLLS³, incorporating hot air balloon basket requirements for seats, seat belts, and the loads in an emergency landing condition, similar to hot air airship requirements. Ultramagic's change application applied the language in the EASA proposed special condition for CS 31HA.14(c), "Occupant mass," CS 31HA.43(d), "Fitting factor," CS 31HA.561(a) and (b)(1), "Emergency landing conditions—General," and CS 31HA.785(a), (c), and (d), "Seats and seat belts" to the CV-08 basket. The FAA finds that these standards are appropriate for a seated, restrained occupant.

Applicability

As discussed above, these special conditions are applicable to the Model M-56, M-56C, M-65, M-65C, M-77, M-77C, M-90, M-105, M-120, M-130, M-145, M-160, N-180, N-210, N-250, N-300, N-355, N-425, S-70, S-90, S-105, S-130, S-160, T-150, T-180, T-210, V-56, V-65, V-77, V-90, and V-105 balloons. Should Ultramagic apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, the FAA would apply these special conditions to that model as well.

² Ref EASA Proposed Special Condition, "Seats and seat belts for hot air balloons," Issue 1, dated October 3, 2014.

³ LFHLLS (Lufttüchtigkeitsforderungen für Heissluft-Luftschiffe)—Airworthiness Requirements for Hot Air Ships, issued November 13, 1997, amended March 10, 1998, Germany.

Conclusion

This action affects only certain novel or unusual design features on the balloon models specified in these special conditions. It is not a rule of general applicability and it affects only the applicant who applied to the FAA for approval of these features on the airplane. These proposed special conditions are identical in intent to the EASA special conditions, although the formatting has been altered to meet these special condition requirements.

List of Subjects in 14 CFR Part 23

Aircraft, Aviation safety.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701-44702, 44704.

The Proposed Special Conditions

Accordingly, the FAA proposes the following special conditions as part of the type certification basis for Ultramagic S.A. Model M-56, M-56C, M-65, M-65C, M-77, M-77C, M-90, M-105, M-120, M-130, M-145, M-160, N-180, N-210, N-250, N-300, N-355, N-425, S-70, S-90, S-105, S-130, S-160, T-150, T-180, T-210, V-56, V-65, V-77, V-90, and V-105 balloons with a basket Model no. CV-08.

1. Hot Air Balloon Crashworthiness Requirements for Seat Installations and Restraints for Seated and Restrained Occupants.

a. *Occupant Mass*

For calculation purposes, it should be assumed the mass of an occupant is at least 86 kilograms (190 pounds).

b. *Seats, Safety Belts, and Harnesses Factor of Safety*

For each seat, safety belt, and harness, its attachment to the structure must be shown, by analysis, tests, or both, to be able to withstand the inertia forces prescribed in paragraph (c) of these special conditions multiplied by a fitting factor of 1.33.

c. *Emergency Landing Conditions—General*

The balloon—although it may be damaged under emergency landing conditions—must be designed to give each occupant every reasonable chance of avoiding serious injury in a crash landing—when seat belts provided for in the design are properly used—and the occupant is subject to the following ultimate inertia forces acting relative to the surrounding structure as well as independently of each other.

- (1) Forward 6g
- (2) Sideways 6g
- (3) Downward 6g

d. *Seats and Seatbelts*

(1) Each seat and its supporting structure must be designed for an occupant mass in accordance paragraph (a) of these special conditions and for the maximum load factors corresponding to the specified flight and ground load conditions, including the emergency landing conditions prescribed in paragraph (c) of these special conditions.

(2) Each seat or berth shall be fitted with an individual approved seat belt or harness.

(3) Seat belts installed on the balloon must not fail under flight or ground load conditions or emergency landing conditions in accordance with paragraph

(c) of these special conditions, taking into account the geometrical arrangement of the belt attachment and the seat.

Issued in Kansas City, Missouri, on June 15, 2018.

Pat Mullen

Manager, Small Airplane Standards Branch

Aircraft

Certification

Service

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